Express5800/320Ma:
System Installation Guide

NEC Solutions (America), Inc.
NR575-01

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Preface

Purpose of This Manual

The *Express5800/320Ma: System Installation Guide* describes how to install and set up your system and power distribution units (PDUs). It also describes how to install Express5800/320Ma software and lists the part numbers of customer-replaceable units (CRUs), which are components that you can easily replace.

Audience

This manual is intended for system administrators who are responsible for installing Express5800/320Ma systems and optional components.

Notation Conventions

This document uses the notation conventions described in this section.

Warnings, Cautions, and Notes

Warnings, cautions, and notes provide special information and have the following meanings:

WARNING

A warning indicates a situation where failure to take or avoid a specified action could cause bodily harm or loss of life.

CAUTION

A caution indicates a situation where failure to take or avoid a specified action could damage a hardware device, program, system, or data.

NOTE

A note provides important information about the operation of an ftServer system.

Typographical Conventions

The following typographical conventions are used in Express5800/320Ma documents:

- The bold font emphasizes words in text or indicates text that you type, the name of a screen object, or the name of a programming element. For example:

  Before handling or replacing a PCI adapter, make sure that you are properly grounded by using a grounded wrist strap.

  In the **System Properties** dialog box, click the **Hardware** tab.

  Call the **RegisterDeviceNotification** function.

- The italic font introduces new terms and indicates programming and command-line arguments that the user defines. For example:

  Many hardware components are *customer-replaceable units* (CRUs), which can be replaced on-site by system administrators with minimal training or tools.

  copy *filename1 filename2*

  Pass a pointer for the *NotificationFilter* parameter

- The monospace font indicates message text. For example:

  ```
  The operation completed successfully.
  ```

Getting Help

If you have a technical question about Express5800/320Ma hardware or software, try these online resources first:

- **Online support from NEC Technical Support.** You can find the latest technical information about an Express5800/320Ma through online product support at the NEC Technical Support Web site:

  http://support.necsam.com/servers/

- **Online product support for Microsoft® products**. Your primary source for support is the computer manufacturer who provided your software, or an authorized Microsoft Support Provider. You can also find the latest technical information about Microsoft Windows® and other Microsoft products through online product support at the Microsoft Help and Support Web site:

  http://support.microsoft.com/

If you are unable to resolve your questions with the help available at these online sites, and the Express5800/320Ma system is covered by a service agreement, please contact NEC Technical Support (866-269-1239).

Notices

- All regulatory notices are provided in the site planning guide for your system.
- Although this guide documents modem functionality, modems are not available for all systems. Ask your sales representative about modem availability.
- ActiveService Network (ASN) is not currently available, but may be ordered in the future.

Chapter 1
Unpacking Your System

When you receive your system, unpack it as described in the Readme First booklet that accompanies the system.

After you unpack the system, do the following:

- Make sure you have the components you require and have ordered.
- Inspect the system to make sure nothing was damaged during shipment.
- Verify that the system serial number on the system label and on the packing list match.
- Make sure you understand safety considerations.

Checking the System Components

Refer to the packing list on the box and make sure you have all the ordered components:

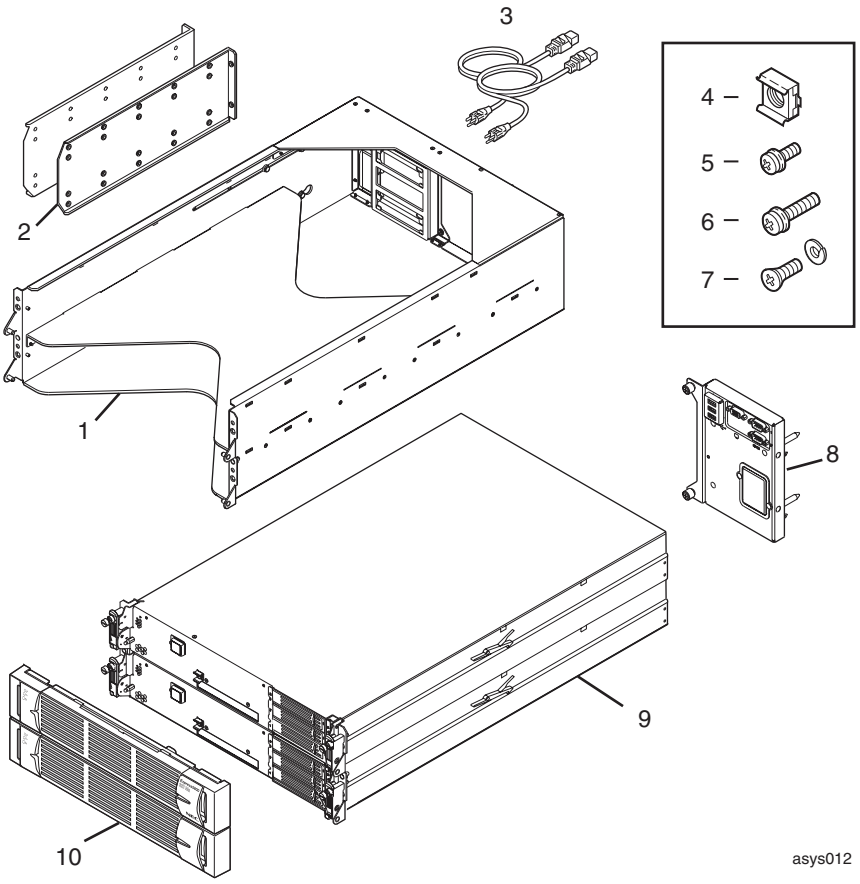
- Accessories box, containing one or more of the following:
  - One gray and one black power cable for connecting the system to power distribution units (PDUs)
  - CD-ROMs and a printed copy of this guide.
- Keyboard and mouse
- Installed Virtual Technician Module (VTM), if ordered

- The following, if ordered:
  - Monitor unit
  - External USB floppy disk drive
  - PDUs for rack-mounted systems
  - Keyboard, video, and mouse (KVM) switch
- For a rack-mounted system, the components shown in Figure 1-1 and, for a pedestal system, the components shown in Figure 1-2.

NOTE

If you received the system already mounted in a cabinet, the components shown in Figure 1-1 have been assembled in the cabinet, with the exception of the power cords.

Figure 1-1. Rack-Mounted System Components



1 Shelf unit (1)

2 Rear mounting brackets (2), with one guide screw in each bracket

3 Power cords

4 10-32 cage nuts (8)

5 10-32 x 5/8 in. pan-head crest-cup Phillips-head screws (4)

6 10-32 x 1/2 in. pan-head crest-cup Phillips-head screws (8). Two screws are installed, one in each rear mounting bracket.

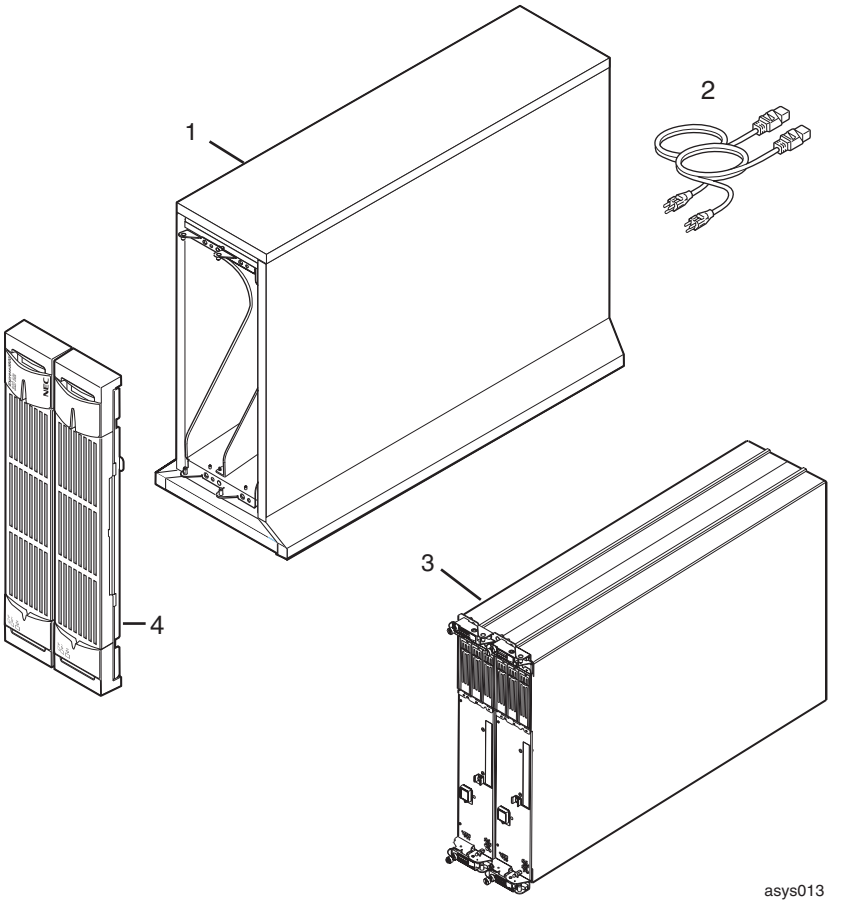
7 10-32 x 1/2 in. counter-sunk screws with lock washers (4)

8 Backplane assembly (1)

9 CPU-I/O enclosures (2)

10 Front bezel (1)

Figure 1-2. Pedestal System Components



1 Pedestal case

2 Power cords

3 CPU-I/O enclosures (2)

4 Front bezel (1)

Inspecting the System

Inspect all equipment for damage. Verify that the equipment has no dents, scratches, or scrapes. If you notice damage, contact NEC Technical Support.

Verifying the System Serial Number

Ensure that the serial numbers on the system and on the packing list match.

1. Find the label that contains the serial number and site ID affixed to the bottom rear of the shelf unit.
2. Compare the serial number on the label with the serial number on the packing list.

If the serial numbers do not match, contact NEC Technical Support before installing the system.

Safety Notices

W A R N I N G

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS PROVIDED WITH THE BATTERY.

W A R N I N G

If you receive locking power cords with your system, do not substitute other power cords. Use of the locking power cords ensures proper grounding of the system.

W A R N I N G

The system uses two power cords to provide redundant sources of power. To fully remove power from a system, disconnect both power cords. To reduce the risk that electrical shock could injure a person or damage the system, exercise caution when working in the unit even when only one power cord is connected.

W A R N I N G

To prevent a cabinet from tipping over and injuring a person or damaging the system, start installing systems from the bottom of the cabinet upward.

WARNING

If you replace the modem cable supplied by NEC Solutions (America), Inc., use a cable with a gauge of at least 26 AWG to prevent fire.

Safety Considerations

Before installing the system, take the following important precautions:

- Observe all applicable industry safety standards. See the "Safety Notices" on page 1-5.
- Provide the necessary space and light to safely perform the installation.
- Do not wear conducting objects, such as rings, bracelets, and keys.

Next Steps

Go to Chapter 2, "Installing a Rack-Mountable System" to install a rack-mountable system in your own cabinet.

Go to Chapter 3, "Installing a Pedestal System" to install a pedestal system,

Go to Chapter 4, "Setting Up Your System" to set up a system that is already mounted in a cabinet.

Chapter 2
Installing a Rack-Mountable System

Before you install the system, make sure that the site has been prepared as described in the *Express5800/320Ma: Site Planning Guide*.

To install your rack-mountable system, see:

- Figure 1-2, which identifies the components of a rack-mountable system
- "Safety Notices" on page 1-5 and "Safety Considerations" on page 1-6
- "Managing Cables" on page 2-1
- "Installing a Rack-Mounted System" on page 2-2
- "Installing the System Components" on page 2-11

Tools required:

- A #2 Phillips-head screwdriver
- A flat-head screwdriver or a cage-nut insertion and extraction tool

Managing Cables

When routing cables within the cabinet, keep all power cords separate from peripheral and communication cables as much as possible. For example, route all power cords on one side of the cabinet and all peripheral and communications cables on the other side of the cabinet, using the cable management rings on your cabinet to constrain the cords and cables.

Installing a Rack-Mounted System

Before installing the system, ensure that:

- Your cabinet (if you are installing the system in your own cabinet) meets the requirements described in the *Express5800/320Ma: Site Planning Guide*.
- The site has been prepared as described in the *Express5800/320Ma: Site Planning Guide*.

If you are using power distribution units (PDUs), install them in your cabinet as described in Chapter 5, “Installing PDUs” before you install the system.

A rack-mounted system consists of the components shown in Figure 1-2.

To install a rack-mounted system, see the following sections:

- “Numbering the Vertical Rails” on page 2-2
- “Attaching Mounting Brackets to the Cabinet Vertical Rails” on page 2-5
- “Installing the Shelf Unit” on page 2-7

Numbering the Vertical Rails

Each system requires 4U, equal to 12 holes, of vertical space.

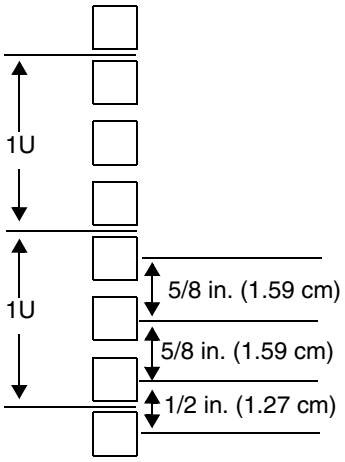
NOTE

The cabinet rails and the system are measured in EIA rack units (U). One U equals 1.75 in. (4.45 cm).

Every three square holes on the EIA square-hole pattern on the vertical rail equals one U. The square holes on EIA rails are located in a repeating pattern of 1/2 in. (1.27 cm), 5/8 in. (1.59 cm), 5/8 in. (1.59 cm), as shown in Figure 2-1.

The middle hole of each U has equal spacing between it and the holes adjacent to it. In some cabinets, numbers on the vertical rails identify the middle hole of each U.

Figure 2-1. EIA Square-Hole Pattern on the Vertical Rail



If your rack is not already numbered, use a marker or pencil to number the middle hole of at least the following:

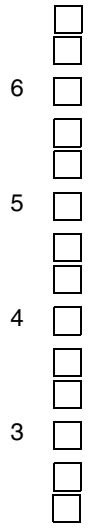
- The 4U in which to install each system
- The 1U in which to install a keyboard, video, and mouse (KVM) switch, if ordered

The following instructions direct you to start numbering the middle hole of the third U in the cabinet, which is the eighth hole, to leave room at the bottom of the cabinet for the PDUs.

To number the vertical rails in a cabinet

1. On each of the front rails, number the middle hole of the 4U where you will install the system. In Figure 2-2, the middle hole of the third, fourth, fifth, and sixth Us are numbered.

Figure 2-2. Numbering the Middle Hole of 4U



2. If you are installing additional systems in the same cabinet, continue numbering the middle hole of another 4U for each system.
3. Repeat the preceding steps at the rear vertical rails.

   To ensure that the components will be level when you install them, mark the same holes on the rear rails that you marked on the front vertical rails.

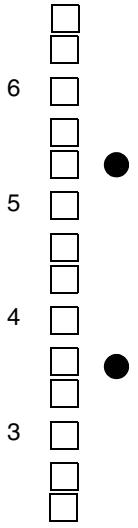
Attaching Mounting Brackets to the Cabinet Vertical Rails

Two mounting brackets, one on each rear vertical rail, support the shelf unit.

To attach the mounting brackets

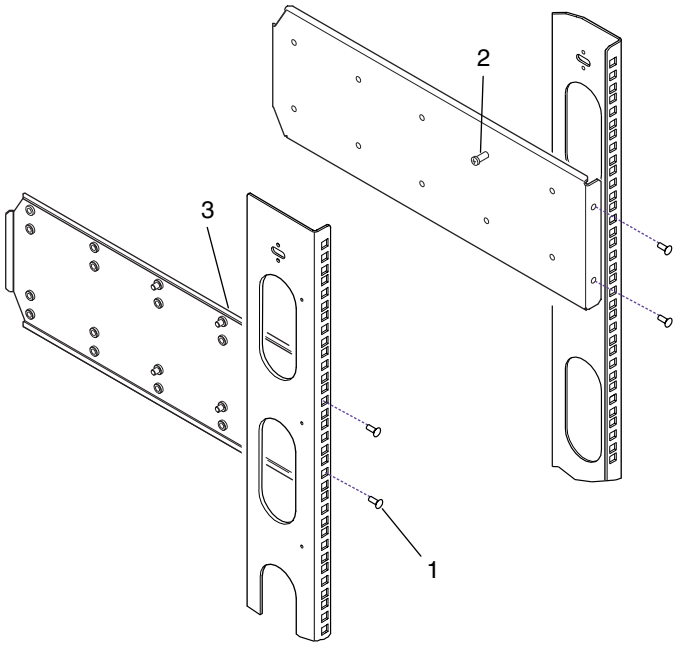
1. On the rear vertical rails, use a pen to mark the holes indicated by dots in Figure 2-3.

Figure 2-3. Screw Locations on the Rear Vertical Rails



2. Position a mounting bracket **inside** a rear vertical rail, lining up the holes in the mounting bracket with the two holes you marked on the rear vertical rail. See Figure 2-4.
3. Insert and tighten two 10-32 x 5/8-in. pan-head crest-cup screws (item 1 in Figure 2-4) through the marked holes in the rear vertical rails and into the holes in the mounting bracket.
4. Repeat steps 2 and 3 for the second mounting bracket.

Figure 2-4. Attaching the Mounting Brackets



1 10-32 x 5/8-in. pan-head crest-cup screw

2 Right guide screw, 10-32 x 1/2-in. pan-head crest-cup

3 Left guide screw, 10-32 x 1/2-in. pan-head crest-cup

5. Measure the distance between the front and rear vertical rails in the cabinet.

NOTE

Left and right in the following instructions are as seen from the rear of the cabinet.

- If the rail depth is less than 27 in. (68.58 cm), move the guide screw (item 2 in Figure 2-4) in the right mounting bracket one hole closer to the rear of the cabinet.
- If the rail depth is greater than 27 in. (68.58 cm), move the guide screw (item 3) in the left mounting bracket one hole closer to the front of the cabinet.

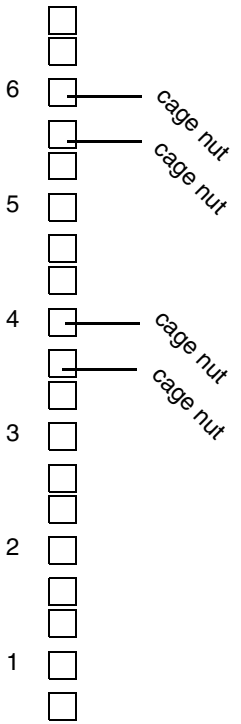
Installing the Shelf Unit

WARNING

To avoid personal injury or damage to the shelf unit, two persons are required to insert the shelf unit into the cabinet and onto the mounting brackets.

1. At the front of the cabinet, insert four cage nuts into each vertical rail, in the locations shown in Figure 2-5.

Figure 2-5. Cage Nut Locations on Front Vertical Rails

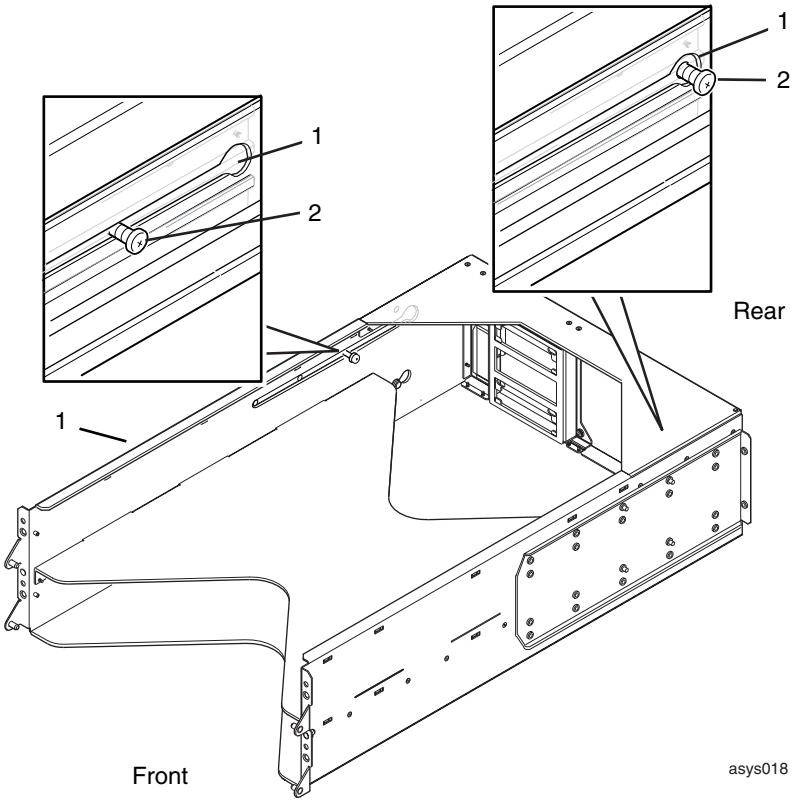


To insert cage nuts, refer to Figure 2-5 and perform the following steps:

a. Position the cage nut so that the flanges are on the top and bottom.
b. Insert the cage nut so that the top flange overlaps the vertical rail.
c. Use a cage-nut insertion tool or your fingers to pull the rest of the cage nut through so that the bottom flange overlaps the vertical rail.

2. With two people, one positioned at the front of the cabinet and one positioned at the rear of the cabinet, insert the shelf unit into the cabinet and onto the mounting brackets.
   a. At the front of the cabinet, slide the shelf unit into the cabinet.
   b. At the rear of the cabinet, flex the right mounting bracket towards the side of the cabinet and guide the shelf unit so that the guide slot at the top right of the shelf unit (item 1 in Figure 2-6) aligns with the guide screw (item 2) on your right.
   c. At the rear of the cabinet, flex the left mounting bracket towards the side of the cabinet and guide the shelf unit so that the guide slot at the top left of the shelf unit (item 1) aligns with the guide screw (item 2) on your left.

Figure 2-6. Mounting the Shelf Unit on the Mounting Brackets

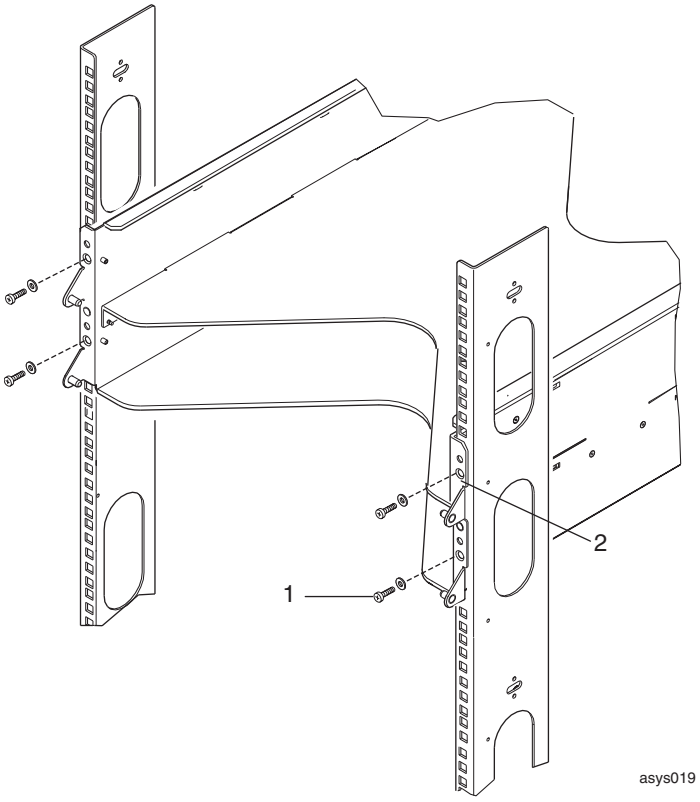


1 Guide slots

2 Guide screws

3. At the front of the cabinet, slide the shelf unit all the way in.
4. In the locations shown in Figure 2-7, secure the shelf unit to the vertical rails by inserting and tightening two 10-32 x 1/2-in. counter-sunk screws and lock washers into each mounting flange on the shelf unit and into the cage nuts behind them.

Figure 2-7. Securing the Shelf Unit to the Front Rails



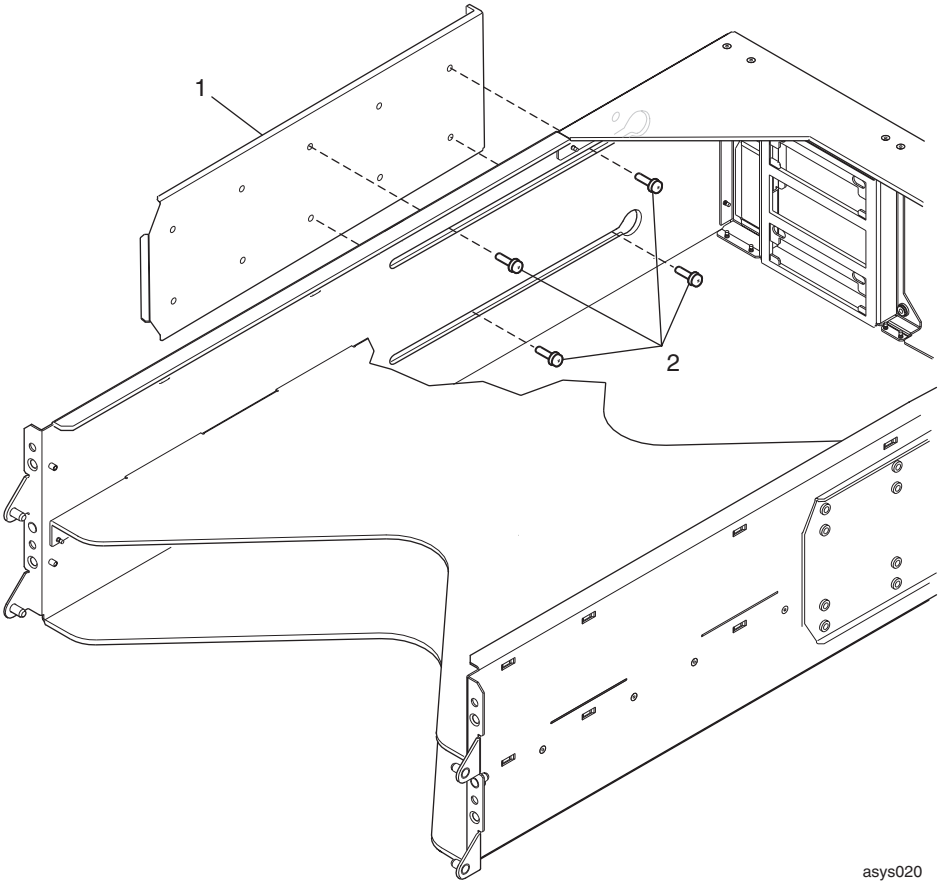
1 10-32 x 1/2-in. counter-sunk screws with lock washers

2 Mounting flange

5. Secure each side of the shelf unit to a rear mounting bracket with four 10-32 x 1/2-in. screws on each side, including the guide screws, as shown in Figure 2-8.

   Tighten all eight screws.

Figure 2-8. Securing the Shelf Unit to the Mounting Brackets



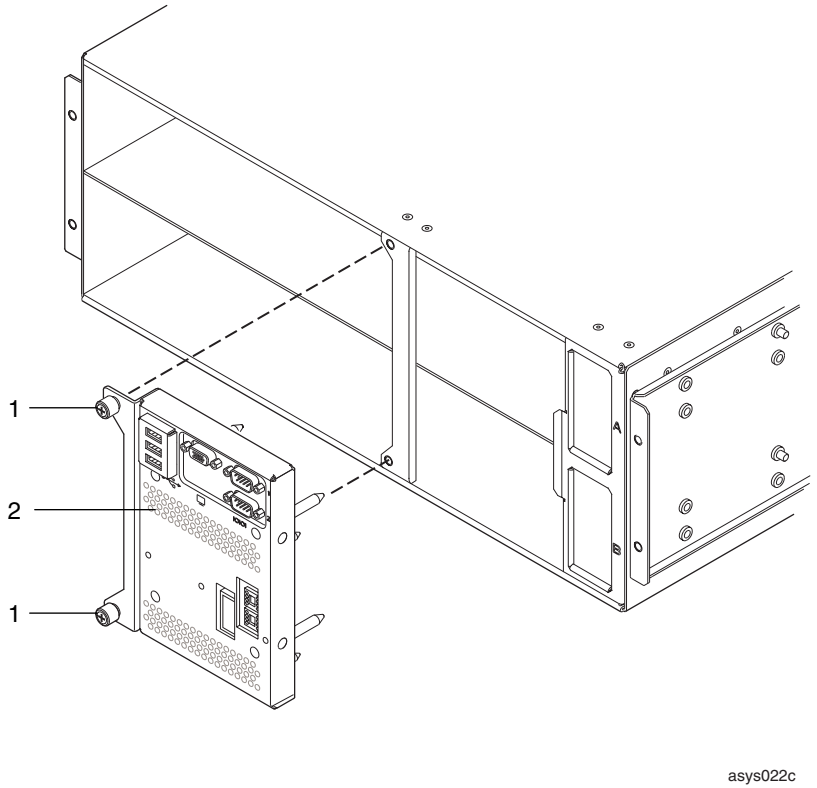
1 Mounting bracket

2 10-32 x 1/2 in. pan-head crest-cup screws with washers

Installing the System Components

1. Install the backplane assembly.
   a. At the rear of the system, install the backplane assembly (item 2 in Figure 2-9), inserting the thumbscrews (item 1) into the screw holes as shown in Figure 2-9.
   b. Slide the backplane assembly slightly to the right and secure it in place by tightening the thumbscrews.

Figure 2-9. Installing the Backplane Assembly on a Rack-Mounted System



1 Thumbscrews

2 Backplane assembly

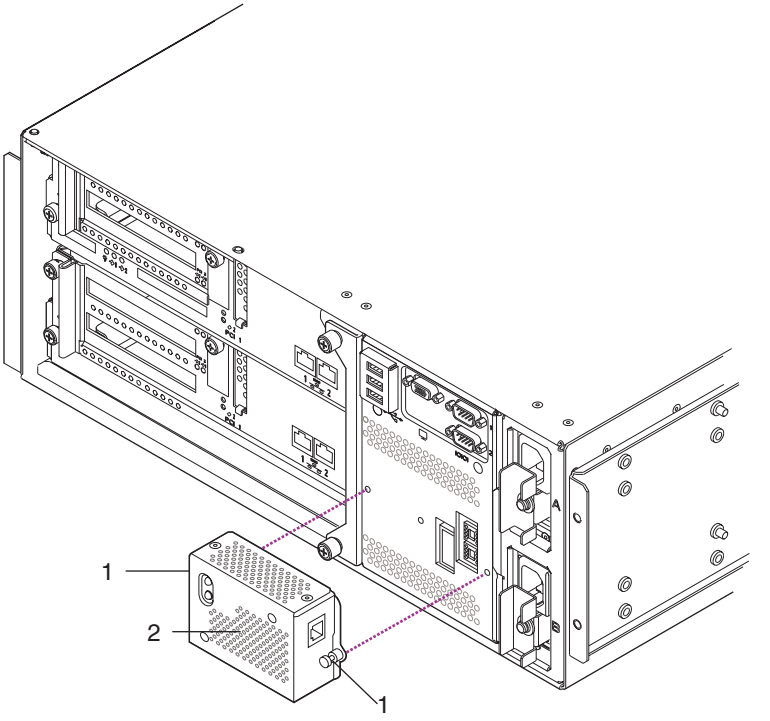
2. If ordered, install the modem assembly.

CAUTION

Make sure that the system is powered off. You can install the modem if the system is turned off and no power cords are connected to the system. If you must install the modem assembly while the system is in operation, see the *Express5800/320Ma: Operation and Maintenance Guide*.

a. At the rear of the system, remove the metal plate from the backplane.
b. Insert the modem assembly into its slot on the backplane, as shown in Figure 2-10.
c. Secure the modem assembly in place by tightening the thumbscrews.

Figure 2-10. Installing the Modem Assembly on a Rack-Mounted System



1 Thumbscrews

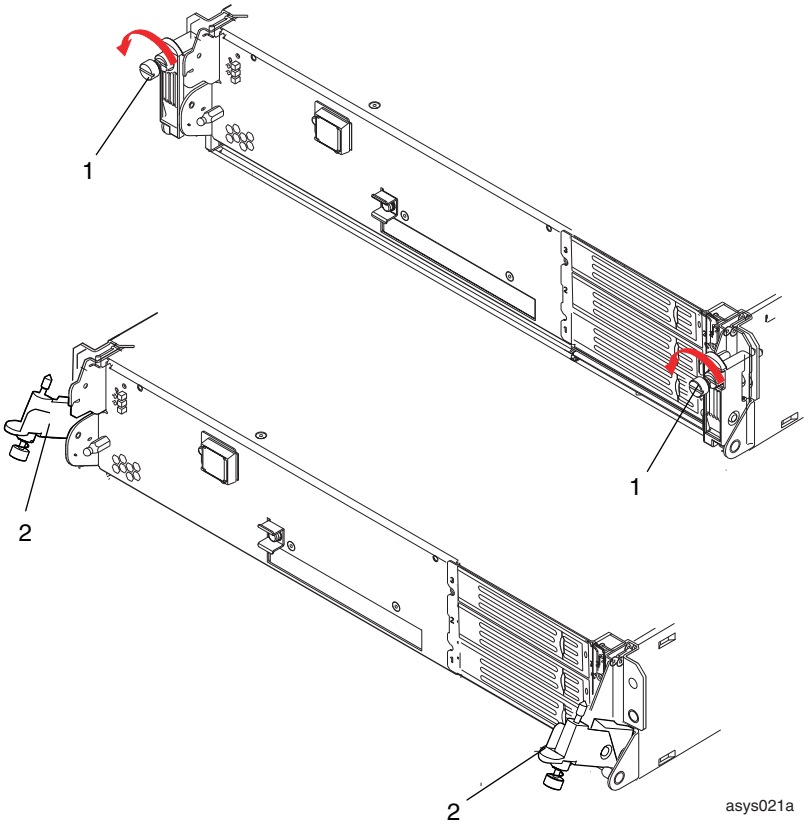
2 Modem assembly

3. Install the CPU-I/O enclosures.
   a. Place each CPU-I/O enclosure on a flat surface and turn the two thumbscrews (item 1 in Figure 2-11) counterclockwise to loosen them and pull the two ejector levers down (item 2).
   b. Slide each CPU-I/O enclosure into a shelf and, with the ejector levers in the open position, slide the CPU-I/O enclosure all the way into its opening.

WARNING

Lifting an enclosure requires two people.

Figure 2-11. Installing the CPU-I/O Enclosures into a Cabinet

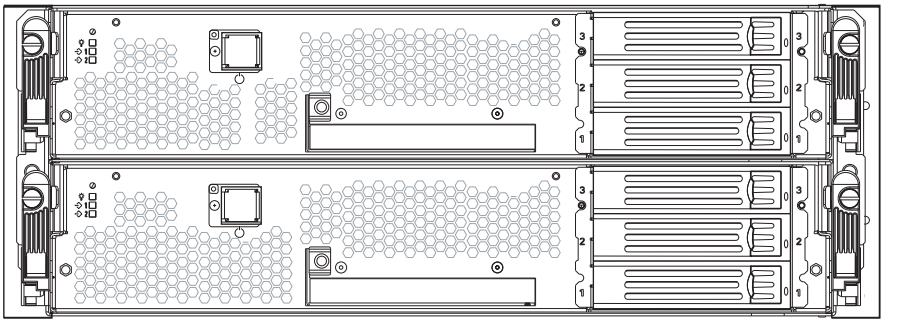


1 Thumbscrew

2 Ejector lever

c. Push the ejector levers up into the closed position and tighten the thumbscrews so that the system is installed in the rack as shown in Figure 2-12.

Figure 2-12. System in a Cabinet



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4. Attach the bezel.

   a. Standing in front of the system, position the bezel so that the LED light extensions that are inside the bezel are on the left.
   b. Press the bezel towards the mounting rails until the bezel snaps into place.

Chapter 3
Installing a Pedestal System

Before you install the system, make sure that the site has been prepared as described in the *Express5800/320Ma: Site Planning Guide*

To install your pedestal system, see Figure 1-2, which identifies the components of a pedestal system, “Safety Notices” on page 1-5, and “Safety Considerations” on page 1-6.

Tools required: None

To install the system in a pedestal case

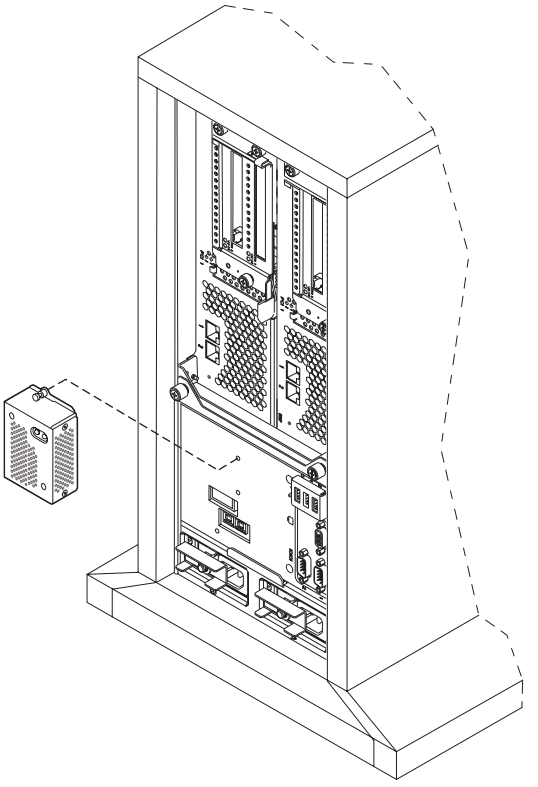
1. Install the modem assembly.

CAUTION

Make sure that the modem is powered off. You can install the modem assembly if the system is turned off and no power cords are connected to the system. If you must install the modem assembly while the system is in operation, see the *Express5800/320Ma: Operation and Maintenance Guide*.

   a. At the rear of the system, remove the metal plate from the backplane.
   b. Insert the modem assembly into its slot on the backplane, as shown in Figure 3-1.
   c. Secure the modem assembly in place by tightening the thumbscrew.

Figure 3-1. Installing the Modem Assembly on a Pedestal System



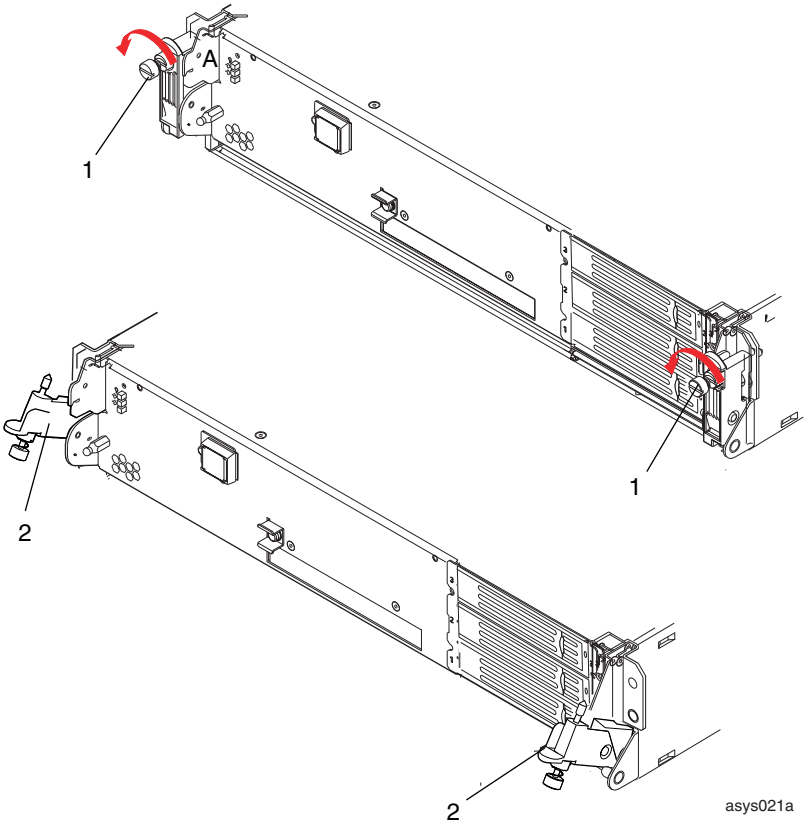
2. Install the CPU-I/O enclosures.
   a. Place each CPU-I/O enclosure on a flat surface and turn the two thumbscrews (item 1 in Figure 3-2) counterclockwise to loosen them. Pull the two ejector levers down (item 2).

WARNING

Lifting the enclosure requires two people.

   b. Slide each CPU-I/O enclosure into a shelf and, with the ejector levers in the open position, slide the CPU-I/O enclosure all the way into its opening.

Figure 3-2. Installing the CPU-I/O Enclosures into a Pedestal Case

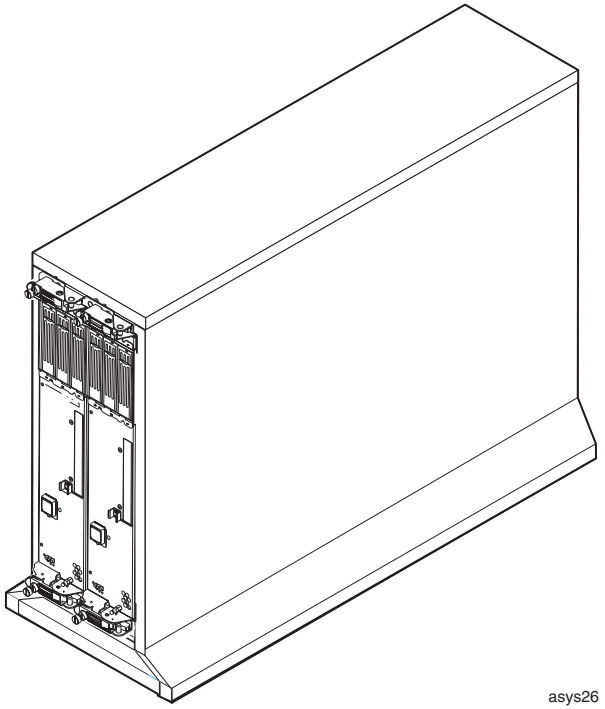


1 Thumbscrew

2 Ejector lever

c. Push the ejector levers into the closed position and tighten the thumbscrews so that the system is installed in the case as shown in Figure 3-3.

Figure 3-3. CPU-I/O Enclosures Fully Inserted in a Pedestal Case



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3. Attach the bezel.

   a. Standing in front of the system, position the bezel so that the LED light extensions that are inside the bezel are on the bottom.
   b. Press the bezel towards the mounting rails until the bezel snaps into place.

Chapter 4
Setting Up Your System

To set up your system, see:

- "Ports on the System" on page 4-1
- "Connecting a Monitor, Mouse, and Keyboard" on page 4-3
- "Connecting the System to Ethernet Networks" on page 4-4
- "Connecting the Modem" on page 4-5
- "Connecting an External USB Floppy Disk Drive" on page 4-6
- "Connecting the System to Electrical Power" on page 4-6

Ports on the System

The ports are located at the rear of the system, as shown in Figures 4-1and 4-2. Refer to these illustrations as you connect cables and power cords to the system.

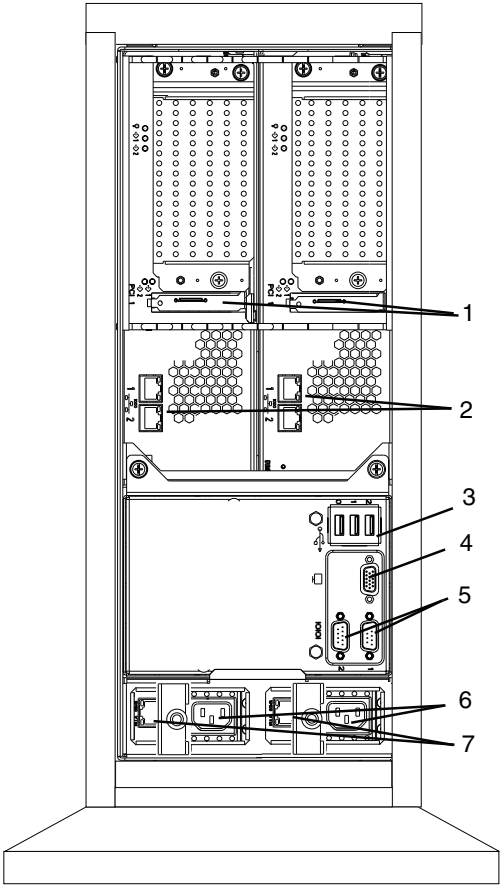
Your system may contain PCI adapters that require cables. Your system contains a half-height PCI adapter slot in each CPU-I/O enclosure. In addition, the system may contain two full-height PCI adapter slots (expansion slots).

Figure 4-1 shows the rear of a pedestal system that contains PCI adapters in the half-height PCI adapter slots.

Figure 4-2 shows a rack-mounted system that contains PCI adapters in the standard half-height slots and in each expansion PCI adapter slot.

When you receive your system from the manufacturer, PCI adapters that were ordered at the same time the system was ordered are installed. If you need to install PCI adapters in the system, see the *Express5800/320Ma: PCI Adapter Guide* and the *Express5800/320Ma: Operation and Maintenance Guide*.

Figure 4-1. Ports on a Pedestal System



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1 Ports on PCI adapters in slot 1

2 System 10/100/1000-Mbps Ethernet ports (4)

3 USB ports (3)

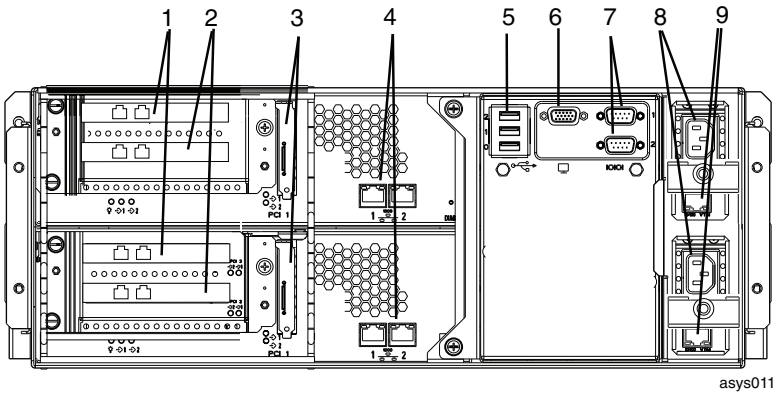
4 VGA (monitor) port

5 Serial (COM) ports (2)

6 Power receptacles (2)

7 VTM 10/100-Mbps Ethernet ports (2)

Figure 4-2. Ports on a Rack-Mountable System



1 Ports on PCI adapters in PCI expansion slot 3
2 Ports on PCI adapters in PCI expansion slot 2
3 Ports on PCI adapters in PCI slot 1
4 System 10/100/1000-Mbps Ethernet ports (4)
5 USB ports (3)
6 VGA (monitor) port
7 Serial (COM) ports (2)
8 Power receptacles (2)
9 VTM 10/100-Mbps Ethernet ports (2)
10 RJ-11 port on modem

Connecting a Monitor, Mouse, and Keyboard

To connect a generic monitor and the V115 mouse and keyboard to the system, see "Connecting a Generic Monitor" on page 4-3.

Connecting a Generic Monitor

1. Connect the USB cable from the mouse to the USB port located at the back of the keyboard.

NOTE

Remove the green USB-to-PS2 converter on the USB cable from the mouse supplied by NEC Solutions (America), Inc.

2. Connect the USB cable from the keyboard to one of the system's USB ports. The system's USB ports are interchangeable. Item 3 in Figure 4-1 and item 5 in Figure 4-2 shows the USB ports on the system.
3. Connect the 15 pin D-sub connector on the VGA cable from the monitor to the system's VGA port. Item 4 in Figure 4-1 and item 6 in Figure 4-2 shows the VGA ports on the system.
4. Connect the VGA cable to the monitor.

Connecting the System to Ethernet Networks

1. Connect the ports for the embedded Ethernet controllers to the network. Provide an unshielded twisted pair (UTP) cable with RJ-45 connectors for each of the four system Ethernet ports you plan to use. Connect one end of each cable to a network port on the system and the other end to an Ethernet wall jack or switch. Item 3 in Figure 4-1 and item 5 in Figure 4-2 shows the USB ports on the systems.
2. Connect the VTMs, if present, to a maintenance or other network. You need two UTP cables with RJ-45 connectors. Connect one end of each cable to a VTM network port. Attach the other end of each cable to an Ethernet wall jack or a switch. Item 8 in Figure 4-1 and item 9 in Figure 4-2 shows the VTM ports on the system.

3. If the system contains Ethernet adapters in PCI slots, connect them to a network.
   - For ports on copper gigabit Ethernet adapters, use UTP cables with RJ-45 connectors.
   - For ports on fiber gigabit Ethernet adapters, use multimode 62.5- or 50-micron, DUAL fiber cable with LC-type connectors to the PCI adapter, and connectors on the other end that are compatible with the network switch.

   NOTES

   1. If you are installing the adapters, install them in pairs, one in the same slot in each CPU-I/O enclosure.
   2. Add cables in pairs, a cable connected to the same port in the same slot in each CPU-I/O enclosure. If you are using a single pair of ports, attach cables to the top port(s) of each card and attach both cables to the same network.
   3. The top connector of a port on a U574 Dual-Port Fiber Gigabit Ethernet Adapter is the transmit port.

   For example, in Figure 4-2, U575 Dual-Port Copper Gigabit Ethernet Adapters are shown in slots 2 and 3 in both CPU-I/O enclosures.

   See the *Express5800/320Ma: PCI Adapter Guide* for further information.

After you connect the cables and when the system is running, use PROSet to configure Ethernet ports into teams. For more information about teaming Ethernet ports, see the *Express5800/320Ma: PCI Adapter Guide*.

Connecting the Modem

1. Connect the modem cable to the RJ-11 line jack on the modem, item 6 in Figure 4-1 and item 10 in Figure 4-2.
2. If necessary, attach a Telco adapter to the modem cable.
3. Connect the modem cable to a telephone jack.

Connecting an External USB Floppy Disk Drive

Use the USB extension cable to connect an optional USB floppy disk drive to a USB port on the system as follows:

1. Connect the USB extension cable to the cable on the floppy disk drive.
2. Connect the USB extension cable to one of the system USB ports. Item 3 in Figure 4-1 and item 5 in Figure 4-2 show the USB ports on the system.

NOTES

1. Software generally assigns the letter A to the optional floppy disk drive when it is first connected to a USB port. If you subsequently connect the drive to a different USB port or if the system fails over, software may assign the letter B to the disk drive.
2. Do not connect the floppy disk drive to the USB hub on the keyboard. The keyboard does not supply the power required by the floppy disk drive.

Connecting the System to Electrical Power

This section describes how to connect both the rack-mounted and pedestal systems to electrical power.

- "System Power Overview" on page 4-6
- "Connecting the System Directly to AC Power (Mains)" on page 4-7
- "Connecting the System to a UPS" on page 4-10
- "Connecting the Systems to Power Through PDUs" on page 4-13

System Power Overview

Your system requires at least two separate and independent AC power outlets, an *A-side* power source and a *B-side* power source. Either source must be capable of continuing to provide power if power to the other source is lost.

The A-side power source provides power to the top CPU0I/O enclosure and a keyboard-video-mouse (KVM) switch. If you use a UPS, the UPS is the A-side power source.

The B-side power source provides power to the bottom CPU-I/O enclosure.

A pair of PDUs supplies power to multiple systems and components in a cabinet. The top PDU in the cabinet provides A-side power. The bottom PDU in the cabinet provides

B-side power. See Chapter 5, “Installing PDUs” for more information about installing PDUs and using them with your system.

WARNING

Use only the power cords or cables you receive from NEC Solutions (America), Inc.

DO NOT MODIFY THE POWER CORDS OR CABLES you receive with your system.

Failure to comply with this warning will void agency certification.

Failure to comply with this warning can cause a fire hazard.

When routing cables within a cabinet, keep power cords separate from peripheral and communications cables as much as possible. For example, route all power cords on one side of the cabinet and all peripheral and communications cables on the other side of the cabinet, using the cable management rings on your cabinet to constrain the cords and cables.

To configure the system to communicate with a UPS in the case of a power outage, see the *Express5800/320Ma: Software Installation and Configuration Guide*.

Connecting the System Directly to AC Power (Mains)

1. Locate two black power cords and two labels, A and B.
2. Attach an A label to one power cord. Connect the power cord according to the system you have:
   - Rack-mounted system: Connect the female end to the receptacle on the **top** CPU-I/O enclosure. Connect the other end to a power source.
   - Pedestal system: Connect the female end to the receptacle on the **right** CPU-I/O enclosure. Connect the other end to a power source.

CAUTION

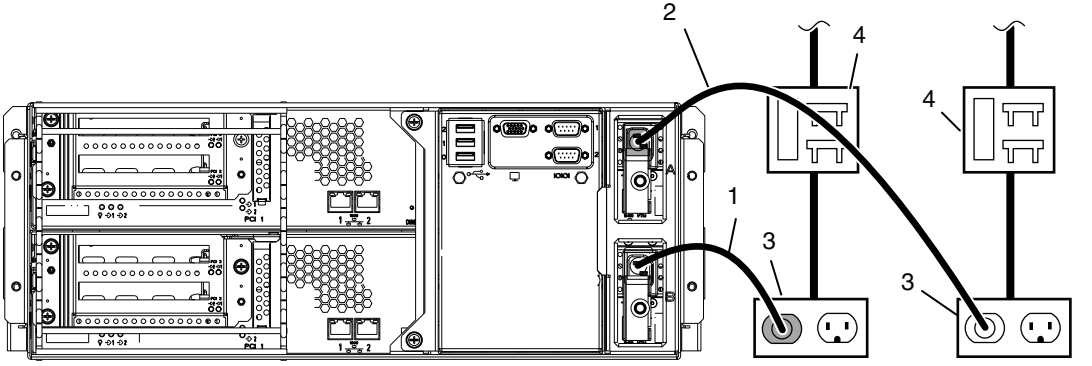
Make sure the power interlock mechanism is unlocked when you insert the power cord. On rack-mounted systems, the unlocked position is vertical and on pedestal systems the unlocked position is horizontal. In Figure 4-1 and in Figure 4-2, the interlock mechanism, located beneath the power connector, is shown in the unlocked

position. In Figure 4-3 and in Figure 4-4, the interlock mechanism is shown in the locked position.

3. Attach a B label to the second power cord. Connect the power cord according to the system you have:
   - Rack-mounted system: Connect the female end to the receptacle on the **bottom** CPU-I/O enclosure. Connect the other end to a second, separate, power source.
   - Pedestal system: Connect the female end to the receptacle on the **left** CPU-I/O enclosure. Connect the other end to a second, separate, power source.
4. From the front of the system, make sure that the CPU-I/O enclosures are fully inserted in the shelf unit by tightening, if necessary, the thumbscrews. Then, at the rear of the system, turn the power interlock mechanisms into the locked position.

Figure 4-3 shows where the two power cords (not color coded) connect to a rack-mounted system.

Figure 4-3. Connecting a Rack-Mounted System Directly to AC Power



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1 B-side power cord

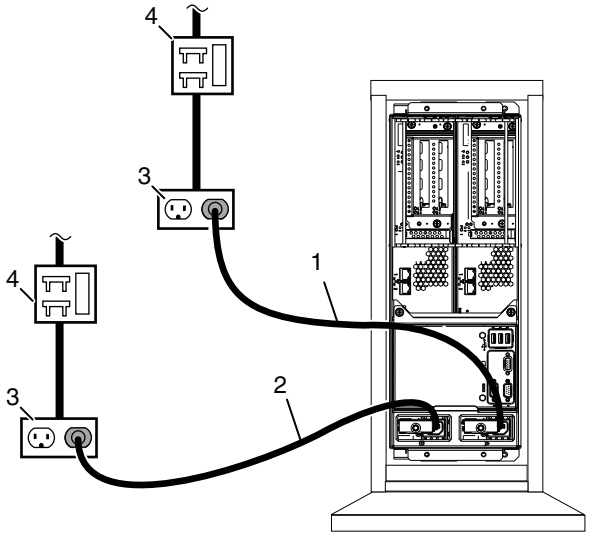
2 A-side power cord

3 AC power outlets

4 AC power (mains) distribution circuit breakers (maximum of 20A)

Figure 4-4 shows where the two black power cords connect to a pedestal system.

Figure 4-4. Connecting a Pedestal System Directly to AC Power



1 A-side power cord

2 B-side power cord

3 AC power outlets

4 AC power (mains) distribution circuit breakers (maximum of 20A)

Connecting the System to a UPS

1. Locate two black power cords and two labels, A and B.
2. Attach an A label to one power cord. Connect the power cord according to the system you have:
   - Rack-mounted system: Connect one end of the cable to the receptacle on the **top** CPU-I/O enclosure. Connect the other, country-specific, end to the UPS.
   - Pedestal system: Connect end of the cable to the receptacle on the **right** CPU-I/O enclosure. Connect the other, country-specific, end to the UPS.

   CAUTION

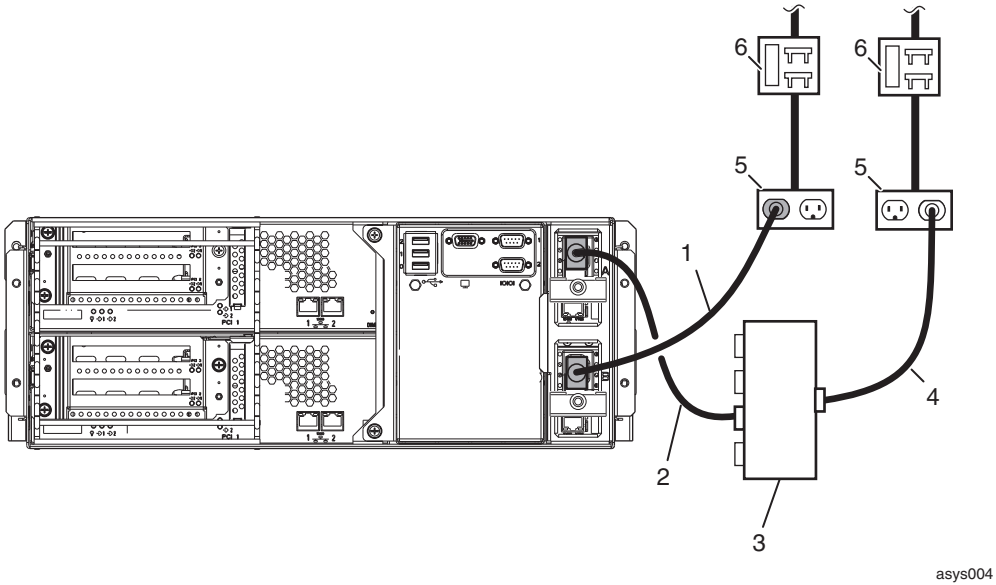
   Make sure the power interlock mechanism is unlocked when you insert the power cord. On rack-mounted systems, the unlocked position is vertical and on pedestal systems the unlocked position is horizontal. In Figure 4-1 and in Figure 4-2, the interlock mechanism, located beneath the power connector, is shown in the unlocked position. In Figure 4-3 and in Figure 4-4, the interlock mechanism is shown in the locked position.

3. Attach a B label to the second power cord. Connect the power cord according to the system you have:
   - Rack-mounted system: Connect one end of the cable to the receptacle on the **top** CPU-I/O enclosure. Connect the other end to a second, separate, power source.
   - Pedestal system: Connect end of the cable to the receptacle on the **left** CPU-I/O enclosure. Connect the other end to a second, separate, power source.
4. From the front of the system, make sure that the CPU-I/O enclosures are fully inserted in the shelf unit by tightening, if necessary, the thumbscrews. Then, at the rear of the system, turn the power interlock mechanisms into the locked position.

To configure the system to communicate with a UPS in the case of a power outage, see the *Express5800/320Ma: Software Installation and Configuration Guide*.

Figure 4-5 shows how the rack-mounted system connects to power through a UPS.

Figure 4-5. Connecting a Rack-Mounted System to a UPS



1 B-side power cord

2 A-side power cord

3 UPS

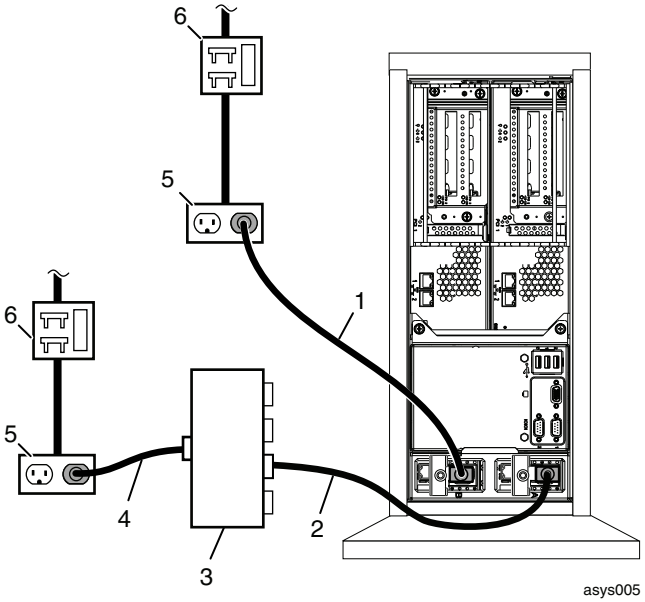
4 UPS power cord

5 AC power outlets

6 AC power (mains) distribution circuit breakers (maximum of 20A)

Figure 4-6 shows how the pedestal system connects to power through a UPS.

Figure 4-6. Connecting a Pedestal System to a UPS



1 B-side power cord

2 A-side power cord

3 UPS

4 UPS power cord

5 AC power source

6 AC power (mains) distribution circuit breakers (maximum of 20A)

Connecting the Systems to Power Through PDUs

1. Locate one black and one gray power cable (*jumper*).
2. Connect oneend of each **gray** cable to the receptacle on the top CPU-I/O enclosure. Connect the other end of each gray cable to the **top** PDU.

CAUTION

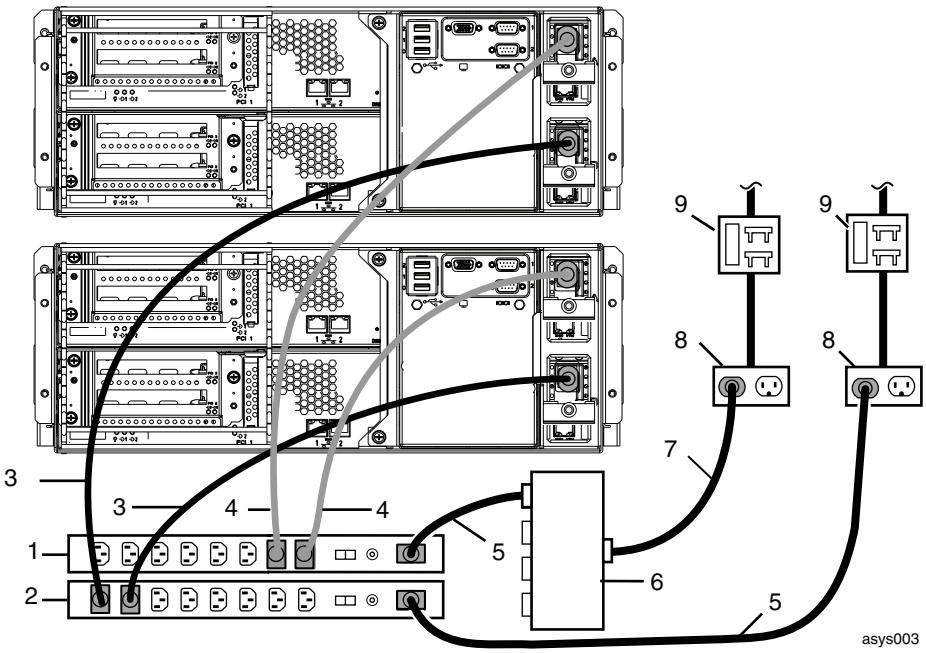
Make sure the power interlock mechanism is unlocked when you insert the power cord. On rack-mounted systems, the unlocked position is vertical and on pedestal systems the unlocked position is horizontal. In Figure 4-1 and in Figure 4-2, the interlock mechanism, located beneath the power connector, is shown in the unlocked position. In Figure 4-3 and in Figure 4-4, the interlock mechanism is shown in the locked position.

3. Connect the end of each **black** cable to the receptacle on the left CPU-I/O enclosure. Connect the other end of each black cable to the **bottom** PDU.
4. From the front of the system, make sure that the CPU-I/O enclosures are fully inserted in the shelf unit by tightening, if necessary, the thumbscrews. Then, at the rear of the system, turn the power interlock mechanisms into the locked position.

See Chapter 5, “Installing PDUs” for more information about the PDUs.

Figure 4-7 shows the color-coded power cables connected to the systems and PDUs.

Figure 4-7. Connecting the Systems to PDUs



1 A-side PDU

2 B-side PDU

3 B-side system power cables (black)

4 A-side system power cables (gray)

5 PDU power cords

6 UPS

7 UPS power cord

8 AC power outlets

9 AC power (mains) distribution circuit breaker (maximum of 20A)

See Chapter 6, “Installing Express5800/320Ma System Software” before you turn on the system.

Chapter 5
Installing PDUs

To install PDUs, see:

- “PDU Components” on page 5-1
- “Installing a PDU in a Cabinet” on page 5-2
- “Connecting PDUs to AC Power” on page 5-3
- “Removing a PDU from a Cabinet” on page 5-5

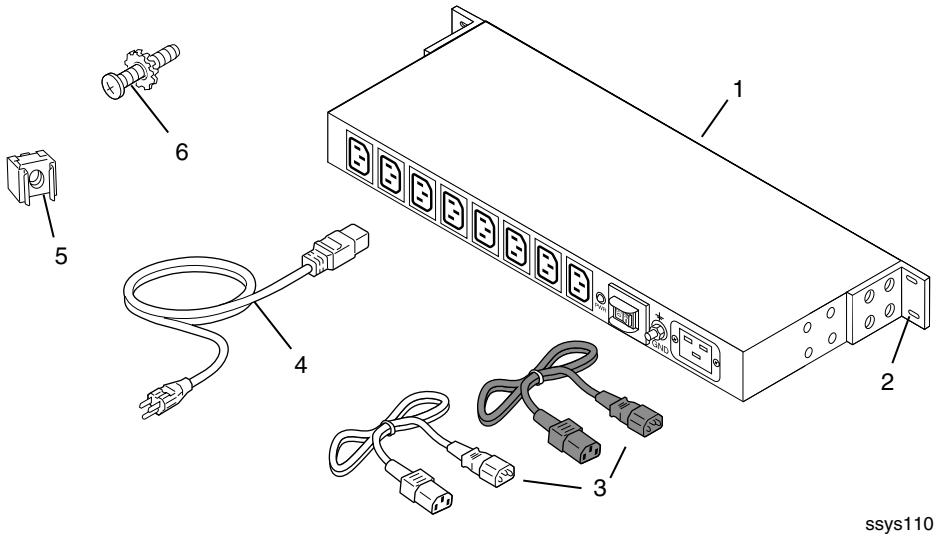
Tool required: #2 Phillips-head screwdriver.

PDU Components

The power distribution units (PDU) should be ordered in pairs. When each PDU is shipped, mounting brackets are attached to the PUU to form one unit.

Verify that you have the components shown in Figure 5-1, and inspect them to ensure that they are not damaged. If you notice damage, contact NEC Technical Support.

Figure 5-1. PDU Components



1 PDU

2 Mounting brackets

3 Power cables (one black and one gray) which accompany the system

4 Power cord

5 10-32 cage nuts (4)

6 10-32 pan-head screws with captive external tooth washers (4)

Installing a PDU in a Cabinet

You can install one or two pairs of PDUs in a cabinet, for a total of four PDUs. Install the first pair of PDUs in the bottom two contiguous one-U locations of the cabinet, and the second pair in two convenient, contiguous one-U locations in the middle of the cabinet.

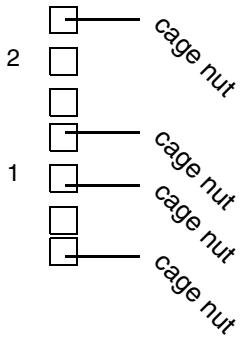
For each pair of PDUs, the PDU in the top U provides *A-side power*. That is, the PDU in the top location powers one CPU-I/O enclosure, and is the only source of power to KVM switches. The PDU in the bottom location provides *B-side power*. That is, the PDU in the bottom U provides power to the other CPU-I/O enclosure and to the other side of an external storage enclosure.

Removable fasteners attach two reversible mounting brackets to the body of the PDU. Eight mounting holes on the PDU let you adjust the bracket.

To install a PDU

1. For each PDU, insert four cage nuts in the rear vertical cabinet rails. Insert two cage nuts in each rear rail, in the top and bottom holes of U positions 1 and 2. The locations in which to install the cage nuts for two PDUs are indicated in Figure 5-2. For detailed information about installing cage nuts, see "Installing the Shelf Unit" on page 2-7.

Figure 5-2. Cage Nut Locations: PDU



2. Hold the PDU at the back of the cabinet, so that the power outlets and controls face you, and the blank side of the PDU faces the inside of the cabinet.
3. Align the screw holes on the mounting brackets with the top and bottom holes of the U with cage nuts, as follows:
   a. Align the first PDU with the U numbered 1 (the bottom U).
   b. Align the second PDU with the U numbered 2 (the second U from the bottom).
4. Attach the PDU with four 10-32 screws with one hand while supporting the PDU with the other.
5. Tighten the screws.

Connecting PDUs to AC Power

At the back of the cabinet, attach a connector end of the country-specific external power cable to the single PDU inlet connector on the right. Connect the country-specific connector end to a power source.

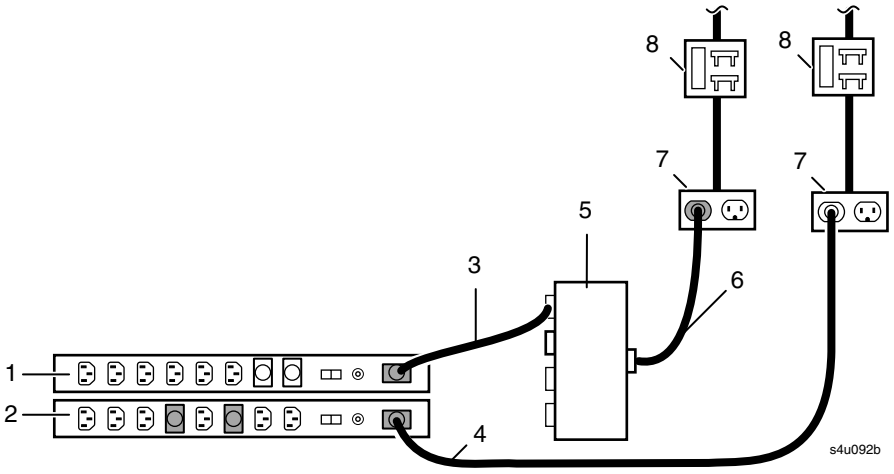
CAUTION

Connect each PDU to a separate power source.

To connect the PDU to the system, see "Connecting the Systems to Power Through PDUs" on page 4-13.

Figure 5-3 shows how to connect PDUs to power sources when one source is a UPS.

Figure 5-3. Connecting a PDU to a UPS



1 A-side PDU

2 B-side PDU

3 Power cord for top PDU

4 Power cord for bottom PDU

5 UPS

6 UPS power cord

7 AC power sources

8 AC power (mains) distribution circuit breakers (maximum of 20A)

Removing a PDU from a Cabinet

CAUTION

If you are removing both PDUs that provide power to the same components, turn off the system components.

1. Remove the system from service. Use one of the following procedures:
   - Click **Start** and select **Shut Down.**
   - Press the power button once, if you have enabled **Allow system to be shutdown without having to logon** enabled. See the *Express5800/320Ma: System Administrator's Guide*.
2. Remove the power cables from the PDU.
3. Remove the four screws with one hand while supporting the PDU with the other hand.
4. Slide the PDU out of the cabinet and place the PDU in a safe place.

Chapter 6
Installing Express5800/320Ma System Software

If the operating system has been installed by the manufacturer, a Microsoft Certificate of Authenticity is placed on the system equipment label at the rear of the system. In this case, supply the information in Table 6-1 and perform only the procedure described in "The Post-IPL Procedure" on page 6-9.

If the operating system has not been installed by the manufacturer, review the information in "Overview of the IPL and Post-IPL Procedures" on page 6-2 and "IPL Considerations" on page 6-2, supply the information in Table 6-1, and perform the procedure described in "Performing the IPL Procedure" on page 6-6, followed by the post-IPL procedure.

NOTES

1. The IPL procedure allows you to perform a single IPL and then duplicate the system disk for bulk deployment. If you are using a duplicate system disk, perform only the post-IPL procedure described in "The Post-IPL Procedure" on page 6-9.
2. Software installation services are available. Contact NEC Technical Support for details.

Overview of the IPL and Post-IPL Procedures

The IPL procedure installs the following:

- Microsoft Windows Server 2003

  On Express5800/320Ma systems, Windows Server 2003 Enterprise Edition and Service Pack 1 is installed and supported.

- Express5800/320Ma, including ftServer drivers, ftServer Manager, and Express5800/320Ma Software Availability Manager (SAM)
- Java™ Runtime Environment (JRE) for using the Virtual Technician Module (VTM) console
- Operating system files that are customized for the systems
- System documentation

IPL Considerations

- Neither the IPL procedure nor the post-IPL procedure mirrors the system disk. To achieve fault tolerance, mirror it after the installation. See the *Express5800/320Ma: Software Installation and Configuration Guide* for instructions.
- Do not attempt to use your Windows Server CD alone to install or reinstall Windows Server. Instead, use the NEC ExpressBuilder CD (1 of 2) to perform the IPL procedure. The NEC ExpressBuilder CD (1 of 2) contains customized drivers that are necessary to run an Express5800/320Ma system properly.
- The Post Installation Check, which runs after the IPL, automatically creates a file named Version*date*.plt (*date* represents the file creation time and date) that contains information about the files that were installed. NEC Technical Support can use this file to analyze installation problems. This information file is created in the following folder:

  %ProgramFiles%\Stratus\CustomerService\VersionReports

- The Post Installation Check tool, which also runs after the IPL, creates a file named Postcheck_*yyyy_mm_dd_hh_mm*.txt in the %ProgramFiles%\Stratus\Customerservice\Installcheck folder on the system drive. In the file name, *yyyy_mm_dd_hh_mm* indicates the year, month, date, hour, and minute when the file was created.

The Post Installation Check tool verifies that:

- Express5800/320Ma applications are properly installed.
- Correct versions of drivers are properly installed.
- The correct, compiled Managed Object Format (MOF) files are present.
- Express5800/320Ma services are installed and started, except for services that run only at system startup.
- Third-party applications are properly installed.
- Microsoft hotfixes are installed.

- The IPL procedure takes approximately two and one-half hours to complete.

Mini-Setup Worksheet

Before you start the IPL or Mini-Setup procedure, record site-specific information on the worksheet shown in Table 6-1, which lists the information requested by the IPL and Mini-Setup prompts.

For more information about the settings listed in Table 6-1, see the Windows documentation.

Table 6-1. Mini-Setup Worksheet

Setting	Description	Entry
Regional settings	The first Customize button changes general settings (such as location or language); the appearance of dates, time, numbers, and currency; and the input locale (the keyboard's input language). The second Customize button changes only the input locale.	N/A
User name and organization	A *user name* is the name of the person who is performing the installation. An *organization* (an optional field) is the organization to which a copy of Windows is licensed.	**User name:** **Organization:**

Table 6-1. Mini-Setup Worksheet *(Continued)*

Setting	Description	Entry
Microsoft product key	If Windows Server 2003 was installed by the manufacturer, you do not need a product key. The product key is located on the Windows Server 2003 CD case or on the cover of Windows Server 2003 documentation.	**Product key:**
Licensing mode	Windows Server 2003 supports two licensing modes: per seat and per server. If you choose **Per server**, each concurrent connection to the server requires a separate Client Access License. If you select this mode, you **can change** the mode to the Per Device or Per User mode later. If you choose **Per Device or Per User**, each computer that accesses the server requires a separate Client Access License. If you select this mode, you **cannot change** the mode to the per-server mode later.	**Check one:** **Per server: _____ (Default value)** **Per Device or Per User ____**
System name and administrator password	A *system name* is a unique computer name that differs from other computer, workgroup, or domain names on your network. Mini-Setup suggests a system name, but you can change the name. Ask your network administrator for name recommendations. An *administrator password* is the password for the Administrator account that Windows automatically creates during installation. It is the logon password for the user whose logon name is Administrator. Record this password.	**System name:** **Administrator password:**
Date and time settings	Use this dialog box to set the date, time, and time zone.	N/A

Table 6-1. Mini-Setup Worksheet *(Continued)*

Setting	Description	Entry
Networking settings	If you have a simple peer-to-peer network, you may want to click **Typical settings**. To configure advanced network options or add more services during Mini-Setup, click **Custom settings**. If you click **Custom settings**, another dialog box prompts you for more information. **Note:** To join a domain, first set your networking settings appropriately. Ask your network administrator for the correct networking settings.	**Check one:** **Typical settings:** _____ **Custom settings:** _____
Workgroup or computer domain	You must join either a workgroup or a domain. A *workgroup* is one or more computers with the same workgroup name. To join a workgroup, provide a new workgroup name, or use the workgroup name that Windows suggests during Mini-Setup. A *domain* is a group of computers that are part of a network, are managed by a domain controller, and share a common directory database. Joining a domain requires a computer account in the domain you want to join. To join a domain during Mini-Setup, provide the name of an existing domain, your user name, and your password.	**Workgroup or domain:**

Performing the IPL Procedure

The IPL procedure takes approximately two and one-half (2.5) hours. System configuration procedures take additional time. See the *Express5800/320Ma: Software Installation and Configuration Guide* for information about these configuration procedures.

Checklist: The IPL Procedure

- ❏ Prepare for the IPL procedure as described in "Preparing for the IPL Procedure" on page 6-6.
- ❏ Perform the IPL procedure as described in "Performing the IPL Procedure" on page 6-6.

Preparing for the IPL Procedure

1. Make sure you have the following media:
   - NEC ExpressBuilder CD (1 of 2)
   - NEC ExpressBuilder CD (2 of 2)
   - One of the following:
     – For an Express5800/320Ma system, Microsoft Windows Server 2003, Enterprise Edition CD with Service Pack 1

     NOTE

     If you are supplying your own Windows Server 2003 CD, make sure it contains only one operating system. If the CD contains more than one operating system, the IPL procedure does not execute correctly.

2. Connect a monitor and keyboard to the system, either directly or through a keyboard, video, mouse switch.
3. Make sure that the hard disk on which you want to install Express5800/320Ma is inserted in one of the following locations:
   – In a rack-mountable system, in the bottom-most slot in the top enclosure
   – In a pedestal system, in the right-most slot in the enclosure on the left
4. Unlatch all other disks. After the IPL, you insert and mirror the disks.

Performing the IPL Procedure

1. If the system is powered on, remove power before starting the IPL. To remove power from the system, shut down Windows.
2. If any storage enclosures are connected to the system, disconnect them.
3. Turn on power to the system.
   a. Verify that the system power cords are plugged into live AC power outlets. If the system is connected to power distribution units (PDUs), make sure that the PDUs are plugged into live AC power outlets and are turned on.
   b. Turn on power to the monitor.
   c. Turn on system power: Press the power button on the enclosure whose power button LED is green-lit.
4. Insert the NEC ExpressBuilder CD (1 of 2) in the CD-ROM drive of the enclosure whose power button LED is green-lit.

5. Disable boot monitoring and, optionally, Option ROM for PCI slots.
   a. When the system is booting and the progress bar has started to fill, press F2 to enter the BIOS Setup program. An *Entering Setup* message appears, but several minutes may elapse before the BIOS Setup program runs.
   b. Use the RIGHT ARROW key to select the **Advanced** tab.
   c. To disable boot monitoring, use the DOWN ARROW key to select **Monitoring Configuration**. Press ENTER. Use the DOWN ARROW key to select **OS Boot Monitoring**. Use the PLUS SIGN (+) key to change the value to **Disabled**. Press ESC.
   d. If the system contains any PCI adapters that contain option ROMs, the system boots faster if you disable Option ROM for the PCI slots that contain the adapters. To disable Option ROM, select **Monitoring Configuration** on the **Advanced** tab. Select each slot that contains an adapter and use the PLUS SIGN (+) key to change the values to **Disabled**.
   e. Press F10. In the **Setup Confirmation** dialog box, select **Yes** and press ENTER to save the new settings and exit from the BIOS Setup program.

      The system reboots after you exit from the BIOS Setup program.

      NOTE

      Disabling boot monitoring prevents several unnecessary restarts of the system during the IPL process.

6. Make sure theNEC ExpressBuilder CD (1 of 2) is inserted in the CD-ROM drive whose power button LED is green-lit.
7. During the next few minutes, the following normally appear:
   - A message: *Initial Program Load*
   - A Windows XP splash screen
   - A black screen, then a blue screen, with no text
   - A Fault Tolerant Server splash screen
8. In the **Start Express5800 series system software IPL** dialog box, accept the default setting, **Run the Initial Program Load for Express5800/320Ma software Release 4.1.*x.x***, and click **Next**.

   NOTES

   1. The dialog box advises you to disable boot monitoring. If you already disabled boot monitoring as described in step 5, you do not need to do so again.
   2. The **Open a session in the Windows Preinstallation Environment** option opens a WinPE command shell.

3. Do not use a customized CD except with the supervision of the NEC Technical Support.

9. Follow the prompts to specify the size of the partition that you want the IPL to create.

   Specify a value within the range of the minimum and maximum allowed partition sizes for your disk, as shown in the dialog box.

   NOTE

   If you plan to use a disk-management tool to configure the system disk as a dynamic disk, ensure that the partition size that you create now is the size that you want. To extend the partition size after the disk becomes dynamic, you may need to purchase and use a third-party tool.

10. Follow the prompts to complete the preinstallation steps of the IPL.
11. If **Windows Setup** displays the message *The Setup script file does not contain a valid Product ID*, click **OK**. Then, in the **Your Product Key** dialog box, enter the product key you specified in Table 6-1 and click **Next**.
12. In the **Preinstallation Completed** dialog box, click **Restart**.

    NOTE

    If the system is left unattended for an extended period of time after this point, an **Unlock Computer** dialog box may prompt you to log in. You do not need to provide a password to log in and continue the installation process.

13. For the next few minutes, Windows Setup copies files and starts installation of Windows updates (hotfixes), restarting the computer at several points.
14. When the **Windows Server Post-Setup Security Updates** dialog box appears, configure the system to download, but not automatically install, hotfixes. Use the following guidelines to install the hotfixes:
    - You can install Microsoft hotfixes that are released in a Security Bulletin as a group of security-related hotfixes.
    - Obtain validation from NEC Solutions (America), Inc. before you install other types of hotfixes, such as Microsoft patches that fix a particular problem.

    See the *Express5800/320Ma ActiveService Network Configuration Guide* for more information about installing hotfixes.

15. Follow the instructions in the **Windows Setup Completed** dialog box.

16. A few minutes may pass before the system restarts and the post-IPL procedure starts.

The Post-IPL Procedure

Perform the post-IPL procedure if Windows and Express5800/320Ma were preinstalled on your system, or if you have just performed the IPL procedure.

Checklist: Performing the Post-IPL Procedure

- ❏ If you have not already done so, complete the Mini-Setup Worksheet. See "Mini-Setup Worksheet" on page 6-3.
- ❏ Respond to Mini-Setup prompts. See "Responding to Mini-Setup Prompts" on page 6-9.
- ❏ Complete the post-IPL procedure. See "Completing the Post-IPL Procedure" on page 6-10.

NOTE

Before proceeding, check for the latest information about your system and Express5800/320Ma in the *Release Notes: Express5800/320Ma* on the NEC ExpressBuilder CD (2 of 2) shipped with your system.

Responding to Mini-Setup Prompts

1. If you have just performed the IPL procedure, go to step 2. Otherwise:
   a. Insert the disk that contains the boot partition in the following location:
      – In a rack-mountable system, in the bottom-most slot in the top enclosure
      – In a pedestal system, in the enclosure on the left, in its right-most slot
   b. Turn on the system, if you have not already done so. See "Performing the IPL Procedure" on page 6-6.
2. If the **Welcome to the Windows Setup Wizard** starts, respond to the Mini-Setup prompts. If prompted by Mini-Setup, enter the license key again. (You are not prompted for the license key if Windows was installed by the manufacturer.) Use the information you provided in Table 6-1 to respond to these prompts.

When Mini-Setup is finished, the system reboots.

NOTE

If your system contains VTMs, the mouse and keyboard may appear unresponsive at some point after the system

has restarted. This is normal behavior while the virtual mouse and keyboard are found by the operating system as new hardware. Responsiveness returns after a short period of time.

Completing the Post-IPL Procedure

1. When the **Welcome to Windows** dialog box appears, press CTRL+ALT+DELETE.
2. Log on by using the Administrator account and password you entered during Mini-Setup and click **OK**.
3. Two separate end-user licensing agreements (EULAs) appear:
   a. Select the appropriate language for the Express5800/320Ma EULA. If you display the EULA, review it, and then click **Close**. Click **I accept the terms of the license agreement** if you agree to the terms, and then click **Continue**.
   b. Select whether you want to display the Microsoft Quick-Fix Engineering EULA Addendum. If you display the EULA, review it, and then click **Close**. Click **I accept the terms of the license agreement** if you agree to the terms, and then click **Continue**.
4. The installation programs for third-party software run. Be sure to install the following software, as NEC Solutions (America), Inc. does not support systems that lack this software.
   - When the Java Runtime Environment Wizard starts, follow the prompts to install JRE, accept the license agreement and the default settings in the remaining dialog boxes. (The JRE Setup dialog box may become partially obscured by the progress bars. Click the dialog box to bring it forward.)

   CAUTION

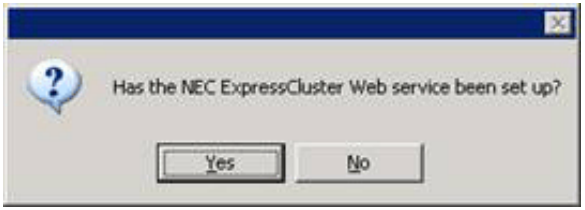
   If the **Setup Complete** dialog box for any third-party software appears, click **No, I will restart my computer later**, and then click **Finish**. If you restart the system now, the installation does not complete properly.

5. When Setup displays the **IPL Completed** dialog box, click **Restart**.
6. Restore the default BIOS settings to enable boot monitoring and, optionally, to enable Option ROM on the PCI slots. While the system is booting, press F2 to enter the BIOS Setup program. In the BIOS Setup program, press F9 to restore the default settings, then press F10 to exit from the BIOS Setup program. You must enable boot monitoring to maintain fault tolerance.

CAUTION

If you do not enable boot monitoring after you perform the IPL, fault-tolerance of the system is compromised.

7. Express5800/320MaAfter the system has restarted, log on again. The Post Installation Check window appears for several minutes.
8. The **Post Installation Check Tool** dialog box appears and automatically runs. This tool verifies that the upgrade was successful and that the system is restored to full operation. Click **Exit** to dismiss the **Post Installation Check Tool** dialog box. See "IPL Considerations" on page 6-2 for a description of the file created by the Post Installation Check tool.
9. The message box 'Has the NEC ExpressCluster Web service been set up?' may appear during the NEC ExpressCluster SRE installation, but will automatically disappear after 5 seconds. **DO NOT** take action to this prompt, or the system may appear to hang.



10. If you are attaching any EMC® storage systems to the system, do the following:
    a. Download and install the latest QLogic® Fibre Channel drivers for Windows 2003.
       – See the *Express5800/320Ma: PCI Adapter Guide* for information about the U525 or U526 PCI adapters that provide connectivity to EMC CLARiiON® and Symmetrix® storage systems, and instructions for downloading, extracting, and installing the driver.
       – See *Attaching an EMC CLARiiON AX100 Storage System to an Express5800/320Ma System* for information about the U531 Optical Fibre Channel PCI Adapter that provides connectivity to AX100 storage systems, and instructions for downloading, extracting, and installing the driver.
    b. Install the EMC PowerPath® software. See the PowerPath documentation from EMC.
    c. Connect the system to the storage enclosure. If the storage enclosure is part of a storage area network (SAN), add the system to the SAN.
11. Configure your system. In particular, do the following:

- Mirror the disks.
- If your system contains VTMs, make sure the VTMs contain the most up-to-date firmware.
- Use PROSet to configure Ethernet ports into teams.

For more information about configuring your system, see the *Express5800/320Ma: Software Installation and Configuration Guide*.

Appendix A
Ordering CRUs

To find the part number for a customer-replaceable unit (CRU), see the following:

- “System CRUs” on page A-2
- “Network Adapters” on page A-3
- “Host Bus Adapters” on page A-3
- “Peripheral Components” on page A-3
- “KVM Switch and Cables” on page A-3
- “System Power Cords” on page A-4
- “PDU and PDU Power Cables” on page A-4

CAUTION

Do not attempt to remove or replace hardware components that are not listed in the CRU tables. Instead, contact the NEC Technical Support to determine the best course of action.

System CRUs

Table A-1 lists the part numbers of customer replaceable units (CRUs) for your system.

Table A-1. System CRUs

Description	Part Number
CPU-I/O enclosure†	AA-G90730
1GB DDR2-400 DIMM	M231
2GB DDR2-400 DIMM	M232
Processor kit: Intel® Xeon® 3.2 GHz	AK-000527
Processor kit: Intel Xeon 3.6 GHz	AK-000541
SATA backplane assembly	AA-E93400
System backplane assembly	AA-E91100
IDE backplane assembly	AA-E93500
Fan assembly (CPU or PSU)	AS-000394
Virtual Technician Module (VTM)	AA-U46300
SATA disk drive, 160GB, 7200 RPM	D642
SATA disk drive, 73GB, 10000 RPM	D643
SATA disk drive, 400 GB, 7200 RPM	D644
SATA disk drive, 160 GB, 7200 RPM	D645
Disk slot filler panel	AS-000390
Cabinet ground cable	AW-002000
CD-ROM drive	AK553
DVD-RW drive	AK554

† Specify memory and processor configuration when requesting a replacement CPU-I/O enclosure. Processors and DIMMs are not CRUs. Their part numbers are supplied solely for use in configuring a replacement enclosure.

Network Adapters

Table A-2 lists the part numbers of the network adapters—network interface cards or NICs—for your system.

Table A-2. Network Adapters and PCI Adapter Cables

Description	Part Number
U575 Dual-Port Copper Gigabit Ethernet Adapter	U575

Host Bus Adapters

Table A-3 lists the part numbers of host bus adapters (HBAs) for your system.

Table A-3. Host Bus Adapter Cables

Description	Part Number
U525 Optical Fibre Channel PCI Adapter	AA-U52500
U526 Optical Fibre Channel PCI Adapter	AA-U52600

Peripheral Components

Table A-4 lists the part numbers of peripheral components that NEC Solutions (America), Inc. supplies for your system. For monitor power cords, see Table A-9.

Table A-4. Peripheral Components

Description	Part Number
USB floppy disk drive, external	AA-000400
Keyboard	AA-V11520
Mouse	AA-V11610

KVM Switch and Cables

Table A-5 lists the part numbers of the KVM switch and its cables.

Table A-5. KVM Switch CRUs

Description	Part Number
Four VGA and USB cables	B40500-10

Table A-5. KVM Switch CRUs

Description	Part Number
One VGA and USB extension cable, 6 ft (1.82m)	B40501-06

System Power Cords

Table A-6 lists the part numbers of the power cords that NEC Solutions (America), Inc. supplies to connect your system directly to AC power. Table A-7 lists the part numbers of the power cables that connect the system to an uninterruptible power supply (UPS).

Table A-6. System Power Cords

Power Cord	Part Number
North America (Chicago), NEMA 5-15, 15A, 100-127 VAC, 50-60 Hz, 7 ft	B50101-07
North America domestic, NEMA 5-15, 15A, 100-127 VAC, 50-60 Hz, 15 ft	B50104-15
North America and Japan, locking power cord, NEMA L6-20, 20A, 200-240 VAC, 50 Hz, 4.5m	B50161-45M
International, locking power cord, IEC-309, 16A, 200-240 VAC, 50 Hz, 4.5m	B50153-45M

Table A-7. Power Cords from a System to a UPS

Power Cord	Part Number
North America and Japan, NEMA 5-15 to IEC-C13, 120 VAC, 15 ft (4.5m)	B50104-15
North America and Japan, locking power cord, NEMA L6-20 to IEC-C13, 200-240 VAC, 50 Hz, 15 ft (4.5m)	B50161-45M
International, IEC-320 C14 to IEC-320 C13, 250 VAC 3.5m	B50301-35M

PDU and PDU Power Cables

Table A-8 lists the part numbers of the PDU, the power cords that connect the PDU to external power and that connect the PDU to a UPS, and the power cables that connect the system and storage enclosures to a PDU.

Table A-8. PDU and PDU Power Cords

Description	Part Number
PDU	AA-P41104
PDU power cords to external power	
NEMA L6-20, 20A, 250 VAC, 50-60 Hz, 15 ft (4.5m)	B50155-45M
NEMA L6-30, (Receptacle must be fused at no more than 20A), 30A, 250 VAC, 50-60 Hz, 15 ft (4.5m)	B50156-45M
IEC-309, 20A, 250 VAC, 50-60 Hz, 15 ft (4.5m)	B50154-45M
PDU power cords to a UPS	
North America and Japan, NEMA L6-20 to IEC-320 C19, 208V, 15 ft (4.5m)	B50155-45M
International, IEC-320 C14 to IEC-320 C19, 230V 3.5m	B38003
PDU power cables (*jumper cables* from PDU to system)	
Gray, IEC-320 C13 to IEC-320 C14, 10A, 250V, 2.0m	B50502-02M
Black, IEC-320 C13 to IEC-320 C14, 10A, 250V, 2.0m	B50503-02M

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